

PEASISTILIFER EDULIS, A NEW EULIMID PROSOBRANCH,
PARASITIC ON AN INDO-PACIFIC HOLOTHURIAN

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ABSTRACT

Peasistilifer edulis new species is described from NE Australia and New Caledonia. It closely resembles previously described species of the genus but has a taller spire and a proportionally smaller aperture. *P. edulis* lives as an ectoparasite on the Indo-Pacific Holothuria (*Halodeima*) *edulis* (Lesson) and sucks body fluid from the lacunae in the body wall of the host.

The family Eulimidae is a large group of mesogastropods with highly variable morphology whose species are ecto- or endoparasites of echinoderms. A review of the genera is given by Warén (*in press*). The new species described here was found some years ago when the senior author prepared a study on the biology and anatomy of *Mucronalia nitidula* Pease, 1860 (Hoskin and Cheng 1969, 1970). Later, Warén (1980) described the genus *Peasistilifer* with *M. nitidula* as type species and listed other species belonging to the genus.

Peasistilifer edulis n. sp.

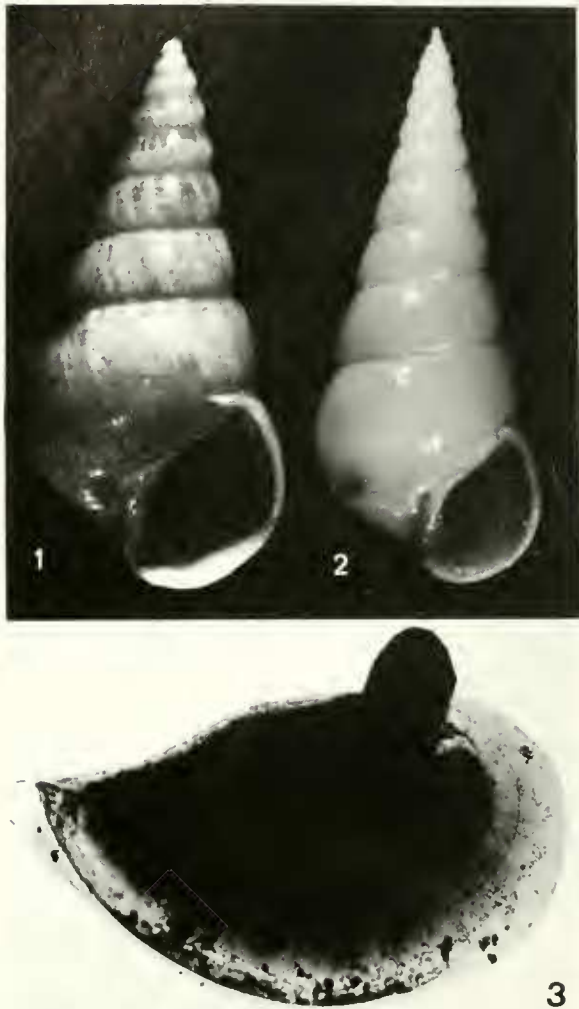
Description – Shell straight, conical, high and pointed, rather solid, opaque, very polished and white. The larval shell consists of about 2.5 whorls (Fig. 3) and its height is 320-340 μ m. The whorls are slightly convex, perfectly smooth, more cylindrical than the postlarval whorls, and differentiated from them by a distinct scar. An adult female has 10.5 postlarval whorls, the first of which increases its diameter very rapidly; later whorls increase slowly and regularly. The postlarval whorls are unusually convex for the family. Their largest diameter is about 1/3 the height of a whorl from the lower suture. Except for a few indistinct incremental lines, they are perfectly smooth and polished. There are no growth scars of the kind characteristic of many eulimids. The aperture is low and rounded. The outer lip, seen from the side, protrudes slightly at the suture, is shallowly sinuated below the

suture, protrudes again at the middle of its height, and is slightly retracted below this point (Fig 4.). Some New Caledonia specimens have a broad and shallow umbilicus behind the low part of the parietal callus; in others (the type specimens) the callus forms an expanded pad covering this area.

Dimensions – Females are 1.5-1.7 times larger than males but slightly narrower in proportion to their height (Figs. 1 and 2). A large female (Fig. 2), height 9.69 mm, diameter 4.74 mm; aperture height 2.50 mm, breadth 1.79 mm. Holotype, found to be male, height 5.48 mm, diameter 2.75 mm, height of the aperture 1.05 mm, breadth 0.55 mm.

Soft parts – The tentacles and the area around the posterior pedal gland are light-yellow; other soft parts are more or less colorless. (In *P. nitidula* there is one reddish spot in front of each eye, on the tentacle, a series of red spots along the rectum, and a reddish line along the osphradium. Remaining parts of the body are white.) The tentacles are rather long and slender with large black eyes at their bases. The male has a large penis behind and to the right of the right tentacle. The foot is rather small but functional and is equipped with anterior and posterior pedal glands. The pedal gland opens into a furrow on the underside of the foot and produces a filament of mucus used for attachment to the host. There is a distinct propodium.

On the sides of the foot are two pedal flaps. The left one is larger and extends from the



FIGS. 1-3. 1 and 2, *Peasistilifer edulis*, shell. 1, *Holotype*, Heron Island, SE Australia, USNM 787954. Height 5.48 mm, male. When collected the shell was white and highly polished. Apparent markings due to preservation damage. 2, *Female*, Ilot Maitre, New Caledonia, 9.69 mm high. (Photographs not to scale.) 3, *Operculum* of *P. edulis*. Height 1.81 mm. Extreme tip broken; dashed line indicates broken part.

posterior end of the opercular lobe along the side of the foot, ending between and just to the right of the proboscis and the left tentacle; its anterior part is drawn out into a short tongue. The right flap is smaller and thinner and does not reach as far posteriorly as the left one. It also lacks the tongue-shaped anterior end, but ends in the corresponding position on the right side. These flaps are highly muscular and prob-

ably cover the base of the shell when the snail is parasitizing.

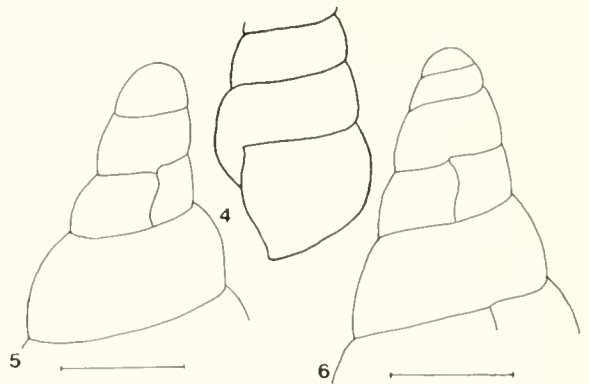
The proboscis is long (but proportionately shorter than in *P. nitidula*) and may not be completely retractile; it was partly extended in preserved *P. edulis* specimens, whereas in *P. nitidula* it was completely retracted. The operculum is large, paucispiral and equipped with a large bulbous muscular attachment deeply inserted into the opercular lobe (Fig. 5). The operculum has radial growth lines and a few spiral lines, one of which is predominant. A distinctly thinner zone along the outer edge acts as a packing to ensure tight fitting of the operculum.

Type locality - On reef flat, Heron Island, Queensland, Australia; attached to body wall of *Holothuria* (*Halodeima*) *edulis* (Lesson). Specimens were collected by the senior author, December 1967.

Holotype - One large male specimen from the type locality, U.S. National Museum of Natural History (USNM), Division of Mollusks, reg. no. 786715 (Fig. 1).

Paratypes - Six specimens from the type locality, USNM, 787954; one large female (Fig. 2) and one male from the body wall of *H. edulis*, Ilot Maitre, off Noumea, New Caledonia, April 27, 1978, 1 m deep, on the reef flat, coll. P. Bouchet, material in Muséum National d'Histoire Naturelle, Paris; a few specimens from Suva, Fiji, January 1967, coll. G. Hoskin; specimens destroyed during anatomical study.

Biology - *P. edulis* lives as an ectoparasite on



FIGS. 4-6. 4, *Sinuation of outer lip* of *P. edulis*. 5, *Apex* of *P. edulis*. Scale line 250 μ m. 6, *Apex* of *P. nitidula*. Scale line 250 μ m.

its host, *H. edulis*. It penetrates the tissues of the holothurian with the proboscis until it reaches a suitable lacuna from which to suck body fluid. The dual functions of the proboscis are attachment and provision of food.

After removal from its host, *P. edulis* has obvious difficulties reattaching. Four specimens were removed and isolated for 2 hours. When replaced on the host, none attached during 2.5 hours of observation. In a similar test, 10 specimens of *P. nitidula*, isolated for 7 days, reattached after about 30 minutes. In another test, four specimens of *P. edulis* and 16 of *P. nitidula* were placed in the center of a tank with a specimen of *H. edulis* caged in one end and a specimen of *Holothuria atra* caged in the other end. Ten of 16 *P. nitidula* reattached to *H. atra* after a mean of 32 minutes, whereas only one *P. edulis* reattached (after 44 minutes) during the 2.5-hour experiment. All specimens moved to the vicinity of the normal host species. When given a choice between *H. atra* and *H. edulis*, *P. nitidula* attached itself to *H. atra*; when given access only to *H. edulis*, it parasitized this species after a few hours' delay.

These tests demonstrated a distinct difference between *P. edulis* and *P. nitidula* in ability to reattach. It may be that the proboscis of *P. edulis* becomes injured when removed from the host. Such injury has been observed in several species of *Melanella*, which also parasitize holothurians.

All specimens of *P. edulis* were obtained from a few hundred *H. edulis*; the junior author obtained 660 specimens of *P. nitidula* from about 1800 *H. atra*, which were examined for parasitic snails in NE Australia, New Caledonia, and the Loyalty Islands. No snails were found on the "wrong" host. Apparently there is a high degree of host specificity in the choice of host in the two species. The junior author encountered no specimens of *P. nitidula* or *P. edulis* during his examination of about 3000 specimens of other holothurians. The size and the number of whorls in the larval shell indicated that *P. edulis* has planktotrophic larval development.

Remarks — *P. edulis* can be recognized among eulimids parasitic on holothurians by its opercu-

lum which has a peg or bulbous attachment (present only in *Peasistilifer*), by its distinctly convex whorls with their largest diameter well below the middle, by the high number of whorls, and by its tall, conical spire. The larval shell of *P. nitidula*, the species of *Peasistilifer* that *P. edulis* most closely resembles, consists of 3.5 whorls rather than 2.5 (Figs. 3 and 6) and is proportionately broader than that of *P. edulis*.

Large females of *P. edulis* resemble species of *Niso* in the shape of the shell, but *Niso* species usually have flat whorls, a very broad umbilicus, a keeled shell base, and a more or less distinct axial sculpture of sharp but indistinct straight or curved lines. The shells of *Niso* species are usually brightly colored and they do not have opercula with pegs.

In some specimens of *P. edulis* the umbilicus is well-developed (Fig. 2); in others it is completely absent (Fig. 1). However, we believe that this is an intraspecific variation, not an indication that two species are involved, because there are also intermediate specimens. If this assumption is wrong and there are two species in our material, the name *P. edulis* should be used for the form without umbilicus, because the holotype belongs to that form.

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**"TEREBRA" COSENTINI PHILIPPI, 1836,
AN AMERICAN COLUMBELLID SPECIES**

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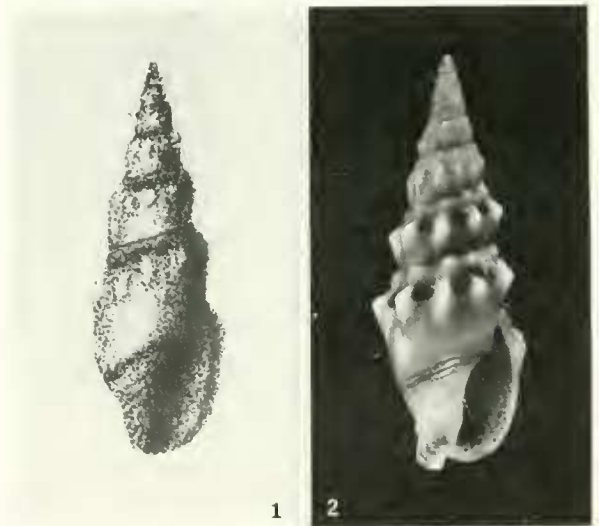
ABSTRACT

Terebra cosentini Philippi, 1836, an alleged Mediterranean species, is shown to be the correct name for the tropical amphiamerican columbellid generally known as *Mazatlaniana aciculata* (Lamarck, 1822), and should be excluded from Mediterranean faunal lists.

The alleged occurrence of a species of *Terebra* in Sicily has long been controversial for Mediterranean conchologists. Although this occurrence has been denied by a number of malacologists, the species *T. cosentini* is still quoted in modern checklists of the Mediterranean fauna (Parenzan 1970; D'Angelo & Gargiullo 1978; Piani 1980 who recognizes its columbellid nature).

De Blainville (1830: pl. 6C, fig. 1) was the first author to record the presence of this species in the Mediterranean under the name *Buccinum aciculatum* Lamarck, 1822, originally described from an unknown locality. Blainville's only two specimens are said to have been received from Prof. Bonelli from the Provence coast. A few years later Philippi (1836: pl. 11, fig. 29) introduced the name *Terebra cosentini* with Naples, Italy, as the type locality. In volume 2 of his work, he himself synonymized his *T. cosentini* with *T. aciculata* (Lamarck). Naples is not mentioned any longer, but the species "is said to live in Tarento" Sicily. A year later, the same species is again described as *Buccinum pulchellum* by Calcara (1845:41, pl. 4, fig. 23), with Palermo, Sicily, as type locality.

From the mid-19th century onwards, we do not know any original record of this species in the Mediterranean until modern checklists. Monterosato, who extensively collected and



FIGS 1 and 2. *Mazatlaniana cosentini* (Philippi, 1836). 1, Copy of Philippi's figure 29:17 mm. 2, Specimen from Las Caracas, Distrito Federal, Venezuela: 14.2 mm.

published on the Sicilian malacofauna denied (1872:59) the Mediterranean origin of the species. Over the last years, we have visited a number of Italian private collections, and corresponded with a number of collectors in southern Italy. We could not find any specimens with accurate Mediterranean locality data. Shells of this species are rare in collections and